

### In the Claims

Please cancel claims 3, 35, and 40-43 without prejudice. Applicants reserve the right to pursue the original subject matter of the cancelled claims in a continuing application. Please also amend claims 1, 4, 6, 13, 21-22, 29-30, 36 and 38, and add claims 44-52 as follows:

1. — **(Currently Amended)** An implant delivery system comprising:

a catheter including an elongated member having an implant mounting location;

an expandable implant mounted on the elongated member body at the implant mounting location, the implant being expandable from a compressed orientation to an expanded orientation, the implant including first and second ends;

a sheath mounted on the elongated member, the sheath being positionable in a transport position in which the sheath covers the implant mounted at the implant mounting location, the sheath also being positionable in a deploy position in which the implant is exposed;

the implant including a first interlock structure and the elongated member body including a second interlock structure, the first and second interlock structures interlocking to constrain axial movement of the implant relative to the elongated member when the implant is at least partially within the sheath, and the first and second interlock structures not constraining radial expansion of the implant;

one of the first and second interlock structures including a male interlock structure and the other of the first and second interlock structures including a female interlock structure adapted to receive the male interlock structure when the implant is in the compressed orientation;

the implant including a cell defining region; and

at least a portion of the first interlock structure being positioned within 5 millimeters of the first end of the implant and within 5 millimeters of the cell defining region of the implant, but not being part of the cell defining region.

2. (Original) The implant delivery system of claim 1, wherein the implant comprises a stent.

3. **(Cancelled)**

4. **(Currently Amended)** The implant delivery system of claim 1, wherein the elongated member body includes a radiopaque marker positioned adjacent to the implant mounting location, and wherein the marker defines the second interlock structure.

5. (Original) The implant delivery system of claim 1, wherein the first end of the implant is a proximal end of the implant.

6. **(Currently Amended)** The implant delivery system of claim 1, wherein the implant includes a plurality of separate first interlock structures ~~having at least portions positioned within 5 millimeters of the first end, and~~ wherein the elongated member body includes a plurality of second interlock structures for interlocking with the first interlock structures.

7. (Original) The implant delivery system of claim 1, wherein the first interlock structure is the male interlock structure and the second interlock structure is the female interlock structure.

8. (Original) The implant delivery system of claim 7, wherein the male interlock structure includes an enlargement positioned at the first end of the implant.

9. (Original) The implant delivery system of claim 8, wherein the implant includes a plurality of enlargements at the first end of the implant.

10. (Original) The implant delivery system of claim 8, wherein the male interlock structure includes a circumferential projection positioned at the first end of the implant.

11. (Original) The implant delivery system of claim 10, wherein the implant includes a plurality of the circumferential projections at the first end of the implant.

12. (Original) The implant delivery system of claim 1, wherein the first interlock structure is the female interlock structure and the second interlock structure is the male interlock structure.

13. (Currently Amended) The implant delivery system of claim 12, wherein the implant includes struts, and the female interlock structure includes a non-expandable post opening defined through at least one of the struts.

14. (Original) The implant delivery system of claim 13, wherein the implant includes a plurality of the post openings.

15. (Original) The implant delivery system of claim 13, wherein the implant includes struts, and the female interlock structure includes an opening between the struts.

16. (Original) The implant delivery system of claim 1, wherein the first interlock structure is within 2 millimeters of the cell defining region of the implant.

17. (Original) The implant delivery system of claim 1, wherein the first interlock structure is within 1 millimeter of the cell defining region of the implant.

18. (Original) The implant delivery system of claim 1, wherein the elongated member extends completely through the implant.

19. (Original) The implant delivery system of claim 1, wherein the cell defining region of the implant includes a boundary defined by an inner diameter and an outer diameter of the implant, and wherein the first interlock structure stays generally within the boundary after the implant has been deployed.

20. (Original) The implant delivery system of claim 1, wherein the first interlock structure is not radially outwardly biased relative to the cell defining region of the implant.

21. **(Currently Amended)** An implant delivery system comprising:
- a catheter including an elongated member having an implant mounting location;
  - an expandable implant mounted on the elongated member body at the implant mounting location, the implant being expandable from a compressed orientation to an expanded orientation, the implant including first and second ends;
  - a sheath mounted on the elongated member, the sheath being positionable in a transport position in which the sheath covers the implant mounted at the implant mounting location, the sheath also being positionable in a deploy position in which the implant is exposed;
  - the implant including a cell defining region, the implant also including a plurality of struts at least some of which have terminal ends defining the first end of the implant, the implant also including at least two enlargements positioned at the terminal ends of the struts, the enlargements being located within 5 millimeters of the cell defining region of the implant; and
  - the elongated member body including interlock structures that interlock with receptacles ~~that receive~~ the enlargements to constrain axial movement of the implant relative to the elongated member when the implant is at least partially within the sheath.

A1- 22. **(Currently Amended)** The implant delivery system of claim 21, wherein the elongated member body includes a radiopaque marker positioned adjacent to the implant mounting location, and wherein the marker defines the receptacles.

23. **(Original)** The implant delivery system of claim 21, wherein the first end of the implant is a proximal end of the implant.

24. **(Original)** The implant delivery system of claim 21, wherein the enlargements are within 2 millimeters of the cell defining region of the implant.

25. **(Original)** The implant delivery system of claim 21, wherein the enlargements are within 1 millimeter of the cell defining region of the implant.

26. (Original) The implant delivery system of claim 21, wherein the elongated member extends completely through the implant.

\* 27. (Original) The implant delivery system of claim 21, wherein the cell defining region of the implant includes a boundary defined by an inner diameter and an outer diameter of the implant, and wherein the enlargements stay generally within the boundary after the implant has been deployed.

28. (Original) The implant delivery system of claim 21, wherein the enlargements are not radially outwardly biased relative to the cell defining region of the implant.

29. **(Currently Amended)** An implant delivery system comprising:  
a catheter including an elongated member having an implant mounting location;  
an expandable implant mounted on the elongated member body at the implant mounting location, the implant being expandable from a compressed orientation to an expanded orientation, the implant including first and second ends;  
a sheath mounted on the elongated member, the sheath being positionable in a transport position in which the sheath covers the implant mounted at the implant mounting location, the sheath also being positionable in a deploy position in which the implant is exposed;  
the implant including a cell defining region having cells that enlarge when the implant is expanded, the implant also including ~~and~~ first and second ends, the implant further also ~~also~~ including at least two female ~~male~~ interlock structures positioned within 5 millimeters of the first end of the implant and within 5 millimeters of the cell defining region of the implant, the female interlock structures being configured to not enlarge when the implant is expanded; and  
the elongated member body including male interlock structures that are received within the female interlock structures to constrain axial movement of the implant relative to the elongated member when the implant is at least partially within the sheath, the male and female interlock structures not constraining radial expansion of the implant.

30. (Currently Amended) The implant delivery system of claim 29, wherein the elongated member body includes a radiopaque marker positioned adjacent to the implant mounting location, and wherein the marker includes the male interlock structures.

31. (Original) The implant delivery system of claim 29, wherein the first end of the implant is a proximal end of the implant.

32. (Original) The implant delivery system of claim 29, wherein the female interlock structures are within 2 millimeters of the cell defining region of the implant.

33. (Original) The implant delivery system of claim 29, wherein the female interlock structures are within 1 millimeter of the cell defining region of the implant.

34. (Original) The implant delivery system of claim 29, wherein the elongated member extends completely through the implant.

35. (Cancelled)

36. (Currently Amended) An implant delivery system comprising:  
a catheter including an elongated member having an implant mounting location;  
an expandable implant mounted on the elongated member body at the implant mounting location, the implant being expandable from a compressed orientation to an expanded orientation, the implant including first and second ends;  
a sheath mounted on the elongated member, the sheath being positionable in a transport position in which the sheath covers the implant mounted at the implant mounting location, the sheath also being positionable in a deploy position in which the implant is exposed;  
the implant including a first interlock structure and the elongated member body including a second interlock structure, the first interlock structure being separate from a cell defining

region of the implant, the first and second interlock structures interlocking to constrain axial movement of the implant relative to the elongated member when the implant is at least partially within the sheath, and the first and second interlock structures not constraining radial expansion of the implant;

one of the first and second interlock structures including a male interlock structure and the other of the first and second interlock structures including a female interlock structure adapted to receive the male interlock structure when the implant is in the compressed orientation; and

at least a portion of the first interlock structure being positioned within 5 millimeters of the first end of the implant, and the elongated member extending through the implant at the implant mounting location.

37. (Original) The implant delivery system of claim 36, wherein at least a portion of the first interlock structure is positioned within 2 millimeters of the first end of the implant.

38. **(Currently Amended)** An implant delivery system comprising:

a catheter including an elongated member having an implant mounting location;

an expandable implant mounted on the elongated member ~~body~~ at the implant mounting location, the implant being expandable from a compressed orientation to an expanded orientation, the implant including first and second ends;

a sheath mounted on the elongated member, the sheath being positionable in a transport position in which the sheath covers the implant mounted at the implant mounting location, the sheath also being positionable in a deploy position in which the implant is exposed;

the implant including a first interlock structure and the elongated member ~~body~~ including a second interlock structure, the first and second interlock structures interlocking to constrain axial movement of the implant relative to the elongated member when the implant is at least partially within the sheath, and the first and second interlock structures not constraining radial expansion of the implant;

one of the first and second interlock structures including a male interlock structure and the other of the first and second interlock structures including a female interlock structure adapted to receive the male interlock structure when the implant is in the compressed orientation;

the implant including a cell defining region that includes a boundary defined by an inner diameter and an outer diameter of the implant, the first interlock structure being separate from the cell defining region and configured to stay generally within the boundary after the implant has been deployed; and

at least a portion of the first interlock structure being positioned within 5 millimeters of the first end of the implant.

39. (Original) The implant delivery system of claim 38, wherein at least a portion of the first interlock structure is positioned within 2 millimeters of the first end of the implant.

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (Cancelled)

44. (New) The implant delivery system of claim 21, wherein the enlargements define openings for receiving the interlock structures of the elongated member.

45. (New) A stent delivery system comprising:  
a catheter including an elongated body having a stent mounting location;  
an expandable stent mounted on the elongated body at the stent mounting location, the stent being expandable from an undeployed orientation to a deployed orientation, the stent including first and second ends and a cell defining region located between the first and second



ends, the cell defining regions defining cells each having a cell length, the stent also including at least one or more first interlock structures positioned <sup>completely within 5 millimeters from one of the second or first end.</sup> within 5 millimeters of the cell defining region of the implant, but not being part of the cell defining region; and

the elongated body including at least one or more second interlock structures that interlock with the one or more first interlock structures to constrain axial movement of the stent relative to the elongated body.

46. (New) The stent delivery system of claim 45, wherein the expandable stent includes at least two first interlock structures positioned within 5 millimeters from the cell defining region, and wherein the elongated body includes at least two second interlock structures that interlock with the at least two first interlock structures of the expandable stent.

47. (New) The stent delivery system of claim 45, wherein the one or more first interlock structures each include an enlargement.

48. (New) The stent delivery system of claim 47, wherein the enlargement of the one or more first interlock structures defines an opening, the opening being configured for receipt of one of the one or more second interlock structures of the elongated body.

49. (New) The stent delivery system of claim 48, wherein the opening of the one or more first interlock structures is configured to not enlarge when the stent is expanded.

50. (New) A stent delivery system comprising:

a catheter including an elongated body having a stent mounting location;

an expandable stent mounted on the elongated body at the stent mounting location, the stent being expandable from an undeployed orientation to a deployed orientation, the stent including first and second ends, the stent also including one or more first interlock structures each having a rounded enlargement; and

the elongated body including one or more second interlock structures that receive the one or more first interlock structures to constrain axial movement of the stent relative to the elongated body.

51. (New) The stent delivery system of claim 50, wherein the expandable stent includes at least two first interlock structures each having a rounded enlargement, and wherein the elongated body includes at least two second interlock structures that receive the at least two first interlock structures.

A!  
Cond 52. (New) The stent delivery system of claim 50, wherein the rounded enlargement of the one or more first interlock structures defines an opening, the opening being configured for receipt of one of the one or more second interlock structures of the elongated body.

---